

1. A method for executing a lighting program to control a plurality of lights, the lighting program defining a plurality of states for the plurality of lights, the method comprising acts of:

- (A) transferring the lighting program from a first device on which the lighting program was created to at least one computer readable medium, the lighting program being transferred in a data format that represents a final data stream capable of directly controlling the plurality of lights;
- (B) coupling the computer readable medium to a second device;
- (C) coupling the second device to the plurality of lights; and
- 10 (D) executing the lighting program on the second device by reading the final data stream from the computer readable medium and passing the final data stream to the plurality of lights to control the plurality of lights.

2. The method of claim 1, wherein the at least one computer readable medium comprises a first computer readable medium, and wherein the act (A) includes an act of transferring the lighting program from the first device to the first computer readable medium via a second computer readable medium, so that the lighting program is transferred from the first device to the second computer readable medium and from the second computer readable medium to the first computer readable medium.

20 3. The method of claim 1, wherein the act (A) includes an act of transferring the lighting program in a data format having an entry in the lighting program corresponding to every one of the plurality of states for the plurality of lights.

25 4. The method of claim 3, wherein the act (D) includes an act of transferring the final data stream directly to the plurality of lights without interpolating any of the data included therein to determine a state for the plurality of lights.

5. The method of claim 1, wherein the lighting program is a first lighting program, 30 and wherein the method further includes acts of:

- (E) transferring a second lighting program to the at least one computer

readable medium so that the computer readable medium simultaneously stores both the first and second lighting programs; and

(F) executing the second lighting program on the second device by reading the second lighting program from the computer readable medium to control the plurality of lights.

5 6. The method of claim 5, wherein the act (E) includes an act of transferring the second lighting program to at least one computer readable medium from the first device.

10 7. The method of claim 5, wherein the act (E) includes an act of transferring the second lighting program in a data format that represents a second final data stream capable of directly controlling the plurality of lights; and

15 wherein the act (F) includes an act of reading the second final data stream from the computer readable medium and passing the second final data stream to the plurality of lights to execute the second lighting program and control the plurality of lights.

8. The method of claim 5, further including an act of, during execution of the first lighting program in act (D), switching to execution of the second lighting program in act (F) in response to an input received at the second device.

20 9. The method of claim 5, further including an act of, during execution of the first lighting program in act (D), switching to execution of the second lighting program in act (F) in response to an input received from a user at the second device.

25 10. The method of claim 5, further including an act of, during execution of the first lighting program in act (D), switching to execution of the second lighting program in act (F) in response to an input received at the second device from a sensor.

11. The method of claim 1, further including an act of, during execution of the first 30 lighting program in act (D), changing an effect assigned in the lighting program to at least one of the plurality of lights from a programmed effect to a new effect in response

to an input received at the second device.

12. The method of claim 1, further including an act of, during execution of the first
5 lighting program in act (D), changing a parameter of at least one effect assigned, in the
lighting program, to at least one of the plurality of lights from a programmed parameter
to a new parameter in response to an input received at the second device.

13. The method of claim 1, further including an act of, during execution of the first
10 lighting program in act (D), changing a speed at which the lighting program is executed
from a programmed speed to a new speed in response to an input received at the second
device.

14. The method of claim 1, further including an act of, during execution of the first
15 lighting program in act (D), changing a speed at which the lighting program is executed
from a programmed speed to a new speed in response to a sensor input received at the
second device.

15. The method of claim 1, further including an act of, during execution of the first
lighting program in act (D), changing an effect assigned in the lighting program to at
20 least one of the plurality of lights from a programmed effect to a new effect in response
to a sensor input received at the second device.

16. The method of claim 1, further including an act of, during execution of the first
lighting program in act (D), changing a parameter of at least one effect assigned, in the
25 lighting program, to at least one of the plurality of lights from a programmed parameter
to a new parameter in response to a sensor input received at the second device.

17. The method of claim 1, wherein the act (B) includes an act of coupling the
computer readable medium to a display-less second device.

30 18. The method of claim 1, wherein the act (B) is performed before the act (A).

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19. The method of claim 1, wherein the act (C) includes an act of disposing the computer readable medium within the second device.

5 20. The method of claim 1, wherein the act (A) includes an act of transferring a lighting program capable of directly controlling at least one non-light device in addition to the plurality of lights; and

10 wherein the act (D) includes an act of executing the lighting program on the second device by reading the final data stream from the computer readable medium and passing the final data stream to the plurality of lights and the at least one non-light device to control the plurality of lights and the at least one non-light device.

15 21. The method of claim 1, further including an act of, during execution of the lighting program in act (D), changing an effect assigned in the lighting program to at least one of the plurality of lights from a programmed effect to a new effect in response to a timing device coupled to the second device.

20 22. The method of claim 1, further including an act of, during execution of the lighting program in act (D), changing an effect assigned in the lighting program to at least one of the plurality of lights from a programmed effect to a new effect in response to a timing device disposed within the second device.

25 23. The method of claim 1, further including an act of, during execution of the lighting program in act (D), changing a parameter of at least one effect assigned, in the lighting program, to at least one of the plurality of lights from a programmed parameter to a new parameter in response to a timing device coupled to the second device.

30 24. The method of claim 1, further including an act of, during execution of the lighting program in act (D), changing a parameter of at least one effect assigned, in the lighting program, to at least one of the plurality of lights from a programmed parameter to a new parameter in response to a timing device disposed within the second device.

25. The method of claim 1, further including an act of, during execution of the
lighting program in act (D), changing a speed at which the lighting program is executed
from a programmed speed to a new speed in response to a timing device coupled to the
5 second device.

26. The method of claim 1, further including an act of, during execution of the
lighting program in act (D), changing a speed at which the lighting program is executed
from a programmed speed to a second speed in response to a timing device disposed
10 within the second device.

27. The method of claim 1, wherein the second device is coupled to a cue table that
identifies various actions to be taken during execution of the lighting program in
response to at least two inputs received at the cue table, and wherein the method further
15 includes an act of, during execution of the lighting program in act (D), changing a speed
at which the lighting program is executed from a programmed speed to a new speed in
response to an output of the cue table.

28. The method of claim 1, wherein the second device is coupled to a cue table that
identifies various actions to be taken during execution of the lighting program in
response to at least two inputs received at the cue table, and wherein the method further
20 includes an act of, during execution of the lighting program in act (D), changing a
parameter of at least one effect assigned, in the lighting program, to at least one of the
plurality of lights from a programmed parameter to a new parameter in response to an
output of the cue table.

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29. The method of claim 1, wherein the second device is coupled to a cue table that
identifies various actions to be taken during execution of the lighting program in
response to at least two inputs received at the cue table, and wherein the method further
30 includes an act of, during execution of the lighting program in act (D), changing an effect
assigned in the lighting program to at least one of the plurality of lights from a

programmed effect to a new effect in response to an output of the cue table.

30. A computer readable medium encoded with a lighting program that, when
executed, controls a plurality of lights and defines a plurality of states for the plurality of
5 lights, the lighting program being encoded in a data format that represents a final data
stream capable of directly controlling the plurality of lights.

10 31. The computer readable medium of claim 30, wherein the lighting program is
encoded in a data format having an entry in the lighting program corresponding to every
one of the plurality of states for the plurality of lights.

15 32. The computer readable medium of claim 30, wherein the lighting program is
encoded in a data format without any information necessary to interpolate any of the data
included therein to determine a state for the plurality of lights.

20 33. The computer readable medium of claim 30, wherein the lighting program is a
first lighting program, and wherein the computer readable medium is further encoded
with a second lighting program that, when executed, controls the plurality of lights.

25 34. The computer readable medium of claim 33, wherein the second lighting program
is encoded in a data format that represents a second final data stream capable of directly
controlling the plurality of lights.

30 35. The computer readable medium of claim 30, wherein the lighting program
includes at least one variable that, at execution time, is to be provided by a device to
which the computer readable medium is coupled.

35 36. The computer readable medium of claim 30, wherein the lighting program
includes data to control at least one non-light device in addition to the plurality of lights.

40 37. An apparatus for executing a lighting program to control a plurality of lights, the
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lighting program defining a plurality of states for the plurality of lights, the apparatus comprising:

at least one storage medium to store the lighting program in a data format that represents a final data stream capable of directly controlling the plurality of lights; and

5 at least one controller that executes the lighting program by reading the final data stream from the computer readable medium and passing the final data stream to the plurality of lights to control the plurality of lights.

38. The apparatus of claim 37, further including an input port, coupled to the at least 10 one storage medium, to enable the lighting program to be loaded into the at least one storage medium from another device while the at least one storage medium is disposed in the apparatus.

39. The apparatus of claim 37, wherein the lighting program is stored on the at least 15 one storage medium in the data format that represents the final data stream capable of directly controlling the plurality of lights.

40. The apparatus of claim 39, wherein the lighting program is stored in the at least one storage medium in a data format having an entry corresponding to every one of the 20 plurality of states for the plurality of lights.

41. The apparatus of claim 37, wherein the at least one controller transfers the final data stream directly to the plurality of lights without interpolating any of the data included therein to determine one of the plurality of states for the plurality of lights.

25 42. The apparatus of claim 39, wherein the lighting program is a first lighting program, and wherein the at least one storage medium further includes a second lighting program stored thereon.

30 43. The apparatus of claim 42, further including a user interface that enables selection between the first and second lighting programs for execution.

44. The apparatus of claim 42, wherein the second lighting program is stored in the at least one storage medium in a data format that represents a second final data stream capable of directly controlling the plurality of lights.

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45. The apparatus of claim 42, further including at least one input to receive information concerning an external environment, and wherein the controller automatically, without user intervention, switches from execution of the first lighting program to execution of the second lighting program in response to the received 10 information.

46. The apparatus of claim 37, further including at least one input to receive information concerning an external environment, and wherein the at least one controller includes means for, during execution of the lighting program, changing a parameter of at 15 least one effect assigned, in the lighting program, to at least one of the plurality of lights from a programmed parameter to a new parameter in response to the received information.

47. The apparatus of claim 37, further including at least one input to receive 20 information concerning an external environment, and wherein, during execution of the lighting program, the controller changes an effect assigned in the lighting program to at least one of the plurality of lights from a programmed effect to a new effect in response to the received information.

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48. The apparatus of claim 37, further including at least one input to receive information concerning an external environment, and wherein, the at least one controller includes means for, during execution of the lighting program, changing an effect assigned in the lighting program to at least one of the plurality of lights from a programmed effect to a new effect in response to the received information.

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49. The apparatus of claim 37, further including at least one input to receive

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information concerning an external environment, and wherein, during execution of the lighting program, the controller changes a parameter of at least one effect assigned, in the lighting program, to at least one of the plurality of lights from a programmed parameter to a new parameter in response to the received information.

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50. The apparatus of claim 37, further including at least one input to receive information concerning an external environment, and wherein, during execution of the lighting program, the controller changes a speed at which the lighting program is executed from a programmed speed to a new speed in response to the received

10 information.

51. The apparatus of claim 39, in combination with a sensor, wherein the apparatus further includes at least one input coupled to the sensor to receive information concerning an external environment, and wherein, during execution of the lighting program, the controller automatically, without user intervention, changes a speed at 15 which the lighting program is executed from a programmed speed to a new speed in response to the received information.

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52. The apparatus of claim 39, in combination with a sensor, wherein the apparatus further includes at least one input coupled to the sensor to receive information concerning an external environment, and wherein, during execution of the lighting program, the controller automatically, without user intervention, changes an effect assigned in the lighting program to at least one of the plurality of lights from a programmed effect to a new effect in response to the received information.

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53. The apparatus of claim 39, in combination with a sensor, wherein the apparatus further includes at least one input coupled to the sensor to receive information concerning an external environment, and wherein, during execution of the lighting program, the controller automatically, without user intervention, changes a parameter of 30 at least one effect assigned, in the lighting program, to at least one of the plurality of lights from a programmed parameter to a new parameter in response to the received

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information.

54. The apparatus of claim 37, wherein the apparatus is display-less.

5 55. The apparatus of claim 39, wherein the lighting program is further capable of directly controlling at least one non-light device in addition to the plurality of lights.

56. The apparatus of claim 37, further including at least one timer that is coupled to the at least one controller so that the at least one controller can alter execution of the lighting program based on the timer.

57. The apparatus of claim 37, further comprising:
at least one input to receive information concerning an external environment; and
a cue table that identifies various actions to be taken during execution of the
15 lighting program in response to the received information;
wherein the cue table has an output coupled to the at least one controller so that
the at least one controller can alter execution of the lighting program based upon the
output of the cue table.

20 58. The apparatus of claim 57, wherein the at least one controller, during execution of the lighting program, changes a parameter of at least one effect assigned, in the lighting program, to at least one of the plurality of lights from a programmed parameter to a new parameter in response to the output of the cue table.

25 59. The apparatus of claim 57, wherein the at least one controller, during execution of the lighting program, changes an effect assigned in the lighting program to at least one of the plurality of lights from a programmed effect to a new effect in response to the output of the cue table.

30 60. The apparatus of claim 57, wherein the at least one controller, during execution of the lighting program, changes a speed at which the lighting program is executed from a

programmed speed to a new speed in response to the received information.

61. The apparatus of claim 57, wherein the at least one input includes a plurality of inputs, and wherein the cue table includes a plurality of functions to interpret actions to
5 be taken during execution of the lighting program based upon combined information received at the plurality of inputs.

62. The apparatus of claim 37, wherein the at least one controller includes means for executing the lighting program by reading the final data stream from the computer
10 readable medium and passing the final data stream to the plurality of lights to control the plurality of lights.

63. A method for executing a lighting program to control a plurality of lights, the lighting program including a sequence of commands for controlling the plurality of lights, the method comprising acts of:

(A) executing the lighting program on a second device by reading the lighting program from the computer readable medium and passing the sequence of commands to the plurality of lights to control the plurality of lights; and

20 (B) during execution of the lighting program in act (A), changing a parameter of at least one effect assigned, in the lighting program, to at least one of the plurality of lights from a programmed parameter to a new parameter in response to an input received at the second device.

64. A method for executing a lighting program to control a plurality of lights, the lighting program including a sequence of commands for controlling the plurality of lights, the method comprising acts of:

(A) executing the lighting program on a second device by reading the lighting program from the computer readable medium and passing the sequence of commands to the plurality of lights to control the plurality of lights; and

30 (B) during execution of the lighting program in act (A), changing a speed at which the lighting program is executed from a programmed speed to a new speed in

response to an input received at the second device.

65. An apparatus for executing a lighting program to control a plurality of lights, the lighting program including a sequence of commands for controlling the plurality of

5 lights, the apparatus comprising:

at least one storage medium to store the lighting program;

at least one input to receive information concerning an external environment; and

at least one controller that executes the lighting program by reading the lighting program from the computer readable medium and passing the sequence of commands to

10 the plurality of lights to control the plurality of lights, wherein, during execution of the lighting program, the controller changes a parameter of at least one effect assigned, in the lighting program, to at least one of the plurality of lights from a programmed parameter to a new parameter in response to the received information.

15 66. An apparatus for executing a lighting program to control a plurality of lights, the lighting program including a sequence of commands for controlling the plurality of lights, the apparatus comprising:

at least one storage medium to store the lighting program;

at least one input to receive information concerning an external environment; and

20 at least one controller that executes the lighting program by reading the lighting program from the computer readable medium and passing the sequence of commands to the plurality of lights to control the plurality of lights, wherein, during execution of the lighting program, the controller changes a speed at which the lighting program is executed from a programmed speed to a new speed in response to the received

25 information.

67. An apparatus for executing a lighting program to control a plurality of lights, the lighting program including a sequence of commands for controlling the plurality of lights, the apparatus comprising:

30 at least one storage medium to store the lighting program;

a plurality of inputs to receive information concerning an external environment;

a cue table that includes a plurality of functions to interpret actions to be taken during execution of the lighting program based upon combined information received at the plurality of inputs;

at least one controller, coupled to the cue table, that executes the lighting program

5 by reading the lighting program from the computer readable medium and passing the sequence of commands to the plurality of lights to control the plurality of lights, wherein, during execution of the lighting program, the controller changes execution of the light program based upon information received from the cue table.

10 68. A system for preparing and playing back a light sequence, comprising an authoring interface displaying information representative of a plurality of lighting effects;

15 a sequence authoring module to permit a user to select a lighting effect, a lighting unit to execute the lighting effect, a start time for the lighting effect, and a stop time for the lighting effect; and

15 a playback device, coupled to the lighting unit, to playback the light sequence.

15 69. The system of claim 68, further comprising a lighting set-up module to receive information representative of an arrangement

20 of a plurality of lighting units, and

20 a set-up interface to visually display the arrangement of the plurality of lighting units.

25 70. The system of claim 69, wherein, upon initiation of a playback function, the set-

25 up interface displays a selected lighting effect as defined by a start time and a stop time associated therewith, on a portion thereof defined by a lighting unit associated with the selected lighting effect.

30 71. The system of claim 69, wherein each lighting unit is associated with a unique

30 address.

72. The system of claim 69, wherein the plurality of lighting units include an LED lighting unit capable of emitting light of any of a range of different colors.

73. The system of claim 68, wherein the authoring interface includes a grid, wherein
5 a plurality of lighting units are represented along one axis and wherein time is represented along a second axis.

74. The system of claim 72, wherein the authoring interface visually represents the selected lighting effect on a region of the grid defined by a lighting unit, start time, and
10 stop time associated with the selected lighting effect.

75. The system of claim 68, further comprising
a recorder to store user selections on an electronic storage medium.

15 76. The system of claim 68, wherein the sequence authoring module includes a coloring unit to permit a user to select a color for the selected lighting effect.

77. The system of claim 68, wherein the sequence authoring module includes a coloring unit to permit a user to select a starting color and an ending color for the
20 selected lighting effect.

78. The system of claim 68, wherein the sequence authoring module includes a transitioning unit to permit a user to select a transition effect for a transition between a first lighting effect and a second lighting effect.

25 79. The system of claim 68, wherein the sequence authoring module includes a prioritizing unit to permit a user to determine a priority for a first lighting effect which shares a temporal overlap with a second lighting effect.

30 80. The system of claim 68, wherein the sequence authoring module includes an intensity unit to permit a user to determine a brightness for the selected lighting effect.

81. The system of claim 68, wherein the sequence authoring module includes a cue unit to permit the user to provide instructions to start the selected lighting effect upon receiving an external stimulus.

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82. The system of claim 68, wherein the sequence authoring module includes a motion unit to permit the user to determine a motion of a lighting unit.

83. The system of claim 68, further comprising a lighting effect creator to permit a 10 user to design lighting effects using the sequence authoring module and to include the user-designed effects on the authoring interface.

84. The system of claim 68, wherein the playback device includes means for playing back the light sequence.

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